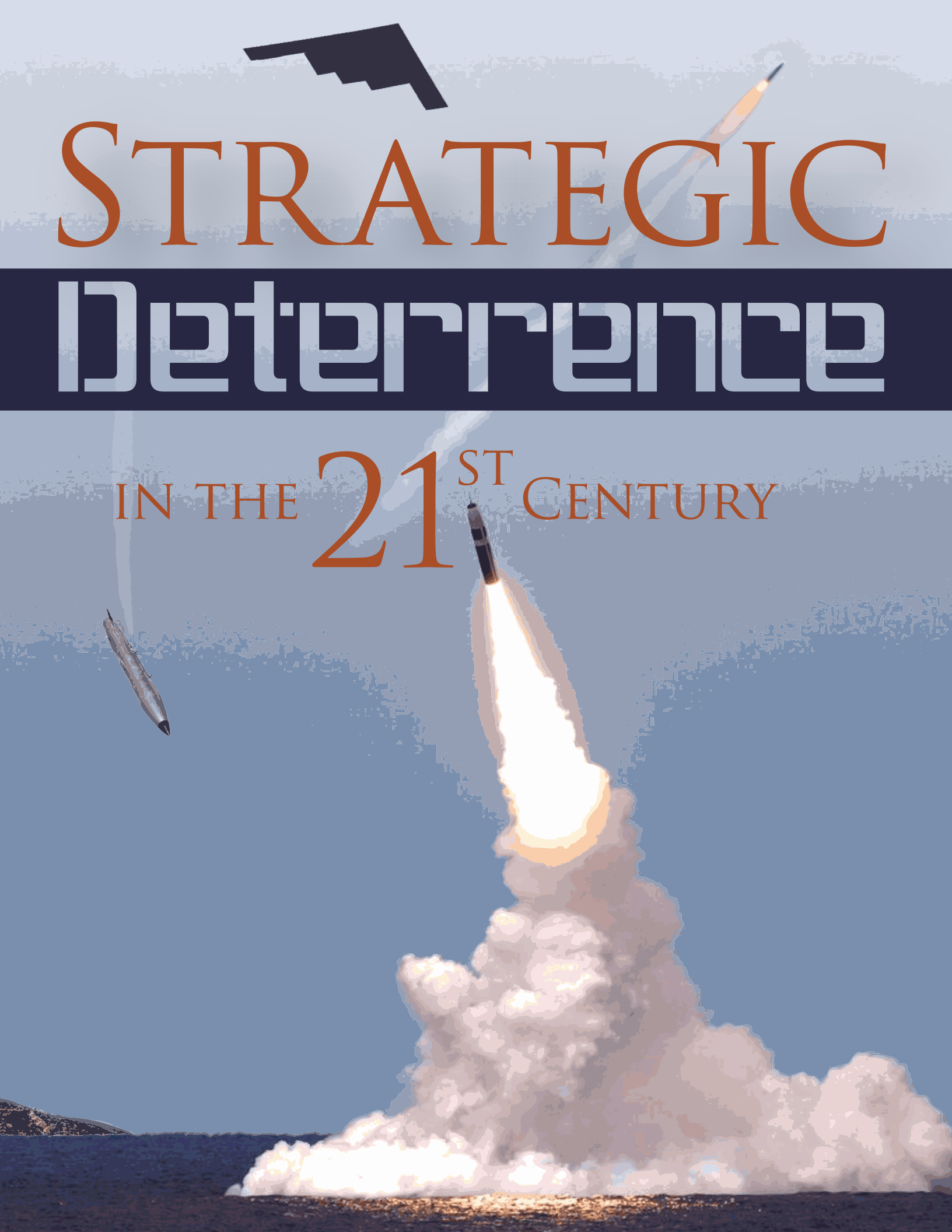
Strategic Deterrence

in the 21st Century



Editor's note: As a service to our readers, NSS *provides this article (originally published in* Undersea Warfare *magazine, Spring 2012) because it presents, in detail, many of the key issues in the debate over the role of nuclear weapons in today's security environment. The author, Admiral Richard W. Mies (retired), is a former commander, Submarine Forces, and former commander, U.S. Strategic Command. He is chairman of the Naval Submarine League Board of Directors.*

The viewpoints expressed in this article are the author's and do not reflect the viewpoints of Los Alamos National Laboratory.

No discussion of deterrence strategy in the 21st century can be meaningful without a clear understanding of how nuclear weapons have revolutionized and transformed warfare. In a small book written at the dawn of the nuclear age, a group of scholars drew some profound and prescient conclusions about the significance for human warfare of what they termed "the absolute weapon." The authors recognized that the atom bomb was revolutionary and fundamentally different from conventional weaponry. Pound for pound, nuclear weapons were several million times more potent; no adequate defense against them was known or foreseen to exist; and some proliferation of nuclear weapon technology to other nations was inevitable, barring international control.[1] One of the most insightful, fundamental conclusions they reached reflected the atom bomb's revolutionary nature:

"Thus far the chief purpose of our military establishment has been to win wars. From now on its principal purpose must be to avert them."[2]

Nuclear weapons have extended the potential of warfare to a level where classical warfare concepts cease to have meaning—to the reductio ad absurdum[3] of warfare. In parallel, they have also come to be seen as different not just by their potency, but "by convention—by an understanding, a tradition, a consensus, a shared willingness to see them as different."[4] And this revolution in warfare—the virtually unlimited capacity to harm each other—is likely to be with us forever, since the knowledge to build nuclear weapons cannot be erased.

The Transformation of Warfare

Because of their revolutionary nature, nuclear weapons are, first and foremost, instruments of national policy, as opposed to instruments of military operations. Nuclear weapons serve as a deterrent against major war, a hedge against an uncertain future, a guarantee of our security commitments to our allies and friends, and a disincentive to those who would contemplate developing or otherwise acquiring their own nuclear weapons. They are primarily weapons of war *prevention*, as opposed to war *fighting*, although war prevention and war fighting cannot be totally disassociated. Nuclear weapons deter by the possibility of their use and by no other means.

Deterrence strategies, which evolved during the Cold War, recognize that the greatest utility of nuclear weapons is in their non-use—in the diplomacy derived from the threat of their use. In that sense, *nuclear weapons are used every day.* The concepts of deterrence, assurance, and dissuasion associated with nuclear weapons differ fundamentally from classical military strategy in that they deal with the exploitation of *potential* force rather than the application of force.

A ground-based interceptor lifts off from Vandenberg Air Force Base in California. The launch is a test of the Ballistic Missile Defense System, which successfully intercepted a long-range target launched from Kodiak, Alaska. (Photo: DoD)

They are intended to shape behavior and, as such, they share some common elements of inducements—of threats and/or promises, explicit or implicit—to either prevent or promote an action. Their primary purpose is to influence potential adversaries' intentions far more than their capabilities through two interrelated means—the power to hurt and the power to deny.[5] These powers are most successful when held in reserve and their non-use, their potential, exploited through diplomacy. The most successful threats are the ones that never have to be carried out. As Sun Tzu noted, "To subdue the enemy without fighting is the acme of skill."[6]

Flexible Response

The great paradox of nuclear weapons is that they deter conflict by the possibility of their use, and the more a potential adversary perceives the credibility of our capabilities and will, the less likely they are to challenge their use. The converse of that proposition is also true. To be credible, capabilities and plans have been developed since the early 1960s to provide the president with as broad a range of options as considered prudent to enable the president to respond with the *minimum use of force* sufficient to deny an adversary's objective.

Nuclear deterrence ultimately depends on the threat of retaliation—not on our capability to strike first, but on the assurance we always have the capability to strike second.

This has been the nature of the concept of "flexible response" and the core of U.S. and NATO targeting doctrines. To argue that this has made nuclear weapons more useable is to ignore their central paradox and their fundamental difference from conventional weapons. To allow nuclear weapon use to become incredible would increase, not lessen, the risk of war.

And because nuclear weapons are primarily designed for war avoidance, nuclear deterrence ultimately depends on the threat of retaliation—not on our capability to strike first, but on the assurance we always have the capability to strike second. In my experience, our strategic forces have always been viewed by our leaders as weapons of last resort, to be employed only when deterrence has failed and all other means to counter aggression or coercion have failed.

From a war-fighting perspective, nuclear weapons have historically been regarded as the nation's "ultimate insurance policy"—de facto weapons of last resort—the least-preferred option, short of surrender, to protect vital national interests.

Strategic Force Evolution

During the past decade, our strategic forces have been on a journey of reductions that was charted in the 2001 and 2010 Nuclear Posture Reviews (NPR) and codified in the Moscow Treaty and, more recently, the New START Treaty. The journey began out of recognition that U.S. nuclear doctrine and forces needed to have lower salience and a less adversarial character, most directly as a result of our changed relationship with Russia, and also out of recognition that deterrence was likely to be more complex and perhaps less reliable, particularly against non-state actors, *although not necessarily less relevant*. I emphasize that this is about a journey rather than a destination because the journey is far more important than the destination.

Simultaneously, *since the end of the Cold War, we have experienced significant erosion in our strategic deterrent capabilities well documented in a number of reports.*[7] In spite of the rhetoric of the past two NPRs and the National Defense Strategy, there has been a paucity of thinking by senior-level decision-makers about the role of our strategic deterrent, and particularly the role of nuclear weapons in the 21st century. Many reasons are given for this, such as the Global War on Terror, operations in Afghanistan and Iraq, unchallenged U.S. conventional superiority. Nevertheless, the result is a glaring mismatch between the rhetoric of national strategy and the resources committed to our national strategy objectives.

Despite recent actions to arrest some of this erosion, our strategic forces appear to be adrift—paralyzed by inaction and a lack of consensus. The fundamental underlying cause has been a lack of attention to nuclear weapon issues by senior leadership—both civilian and military—across both present and past administrations. This lack of senior leadership attention has resulted in public confusion, congressional distrust, and a serious erosion of advocacy, expertise, and proficiency in our nuclear forces.

Our Aging Nuclear Enterprise

While we have made great progress in the drawdown of our strategic forces, progress to modernize our strategic deterrent enterprise has been inadequate to meet our national security needs. If one thinks about our strategic capabilities as an enterprise, it really resembles a pyramid, as Figure 1 depicts, whose foundation is the scientific and technological expertise resident in our nuclear complex employees and in our strategic operating forces. That foundation is growing increasingly thin and brittle—through both an aging workforce and difficulties recruiting and retaining the best and brightest.

And while many have spoken eloquently about the importance of science and technology programs as critical underpinnings of the Department of Energy's (DOE) portion of the nuclear enterprise, there are really few, if any, programs on the Department of Defense (DoD) side that are analogous to DOE's science-based stockpile stewardship program or the advanced computing initiatives. We have raised a whole generation of *war-fighters* within DoD who have received virtually no professional education in the theories of deterrence, assurance, and dissuasion, and who consequently often fail to think in *war-prevention*

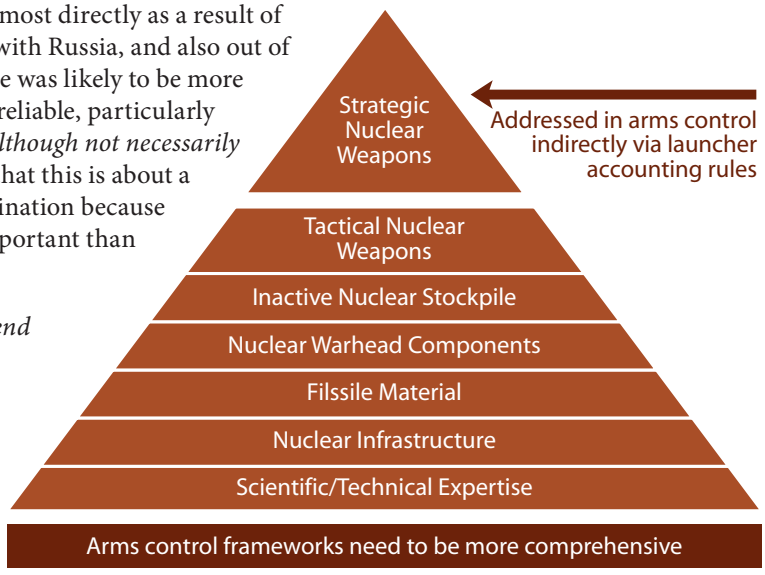


Figure 1. The U.S. nuclear enterprise is aging on all levels.

terms. Additionally, there has been until recently little, if any, programmatic advocacy within the Office of the Secretary of Defense, the Joint Staff, and the military services for the strategic nuclear enterprise.

Several points are worthy of mention with respect to this enterprise pyramid. Foremost, deterrence depends on the health of the entire pyramid, not just any one element. We can't deter with just a strong foundation—a "virtual deterrent" is simply not credible. Second, the distinction between tactical and strategic nuclear weapons is an outmoded, treaty-derived distinction that relates more to delivery platforms than actual warheads. There is little significant difference in the design and capabilities of our tactical and strategic warheads. The principal distinction is in the delivery platform; any tactical nuclear weapon can be used with strategic effect.

Despite these factors, our focus on the enterprise tends to be disproportionately narrow—driven to an over-emphasis on the very top of the pyramid—to strategic weapons—and even then indirectly—because of our captivation with strategic warhead numbers.[8] As a consequence, we often fail to view the enterprise in a more comprehensive way.

Deterrence depends on the health of the entire pyramid, not just any one element.

Figure 2 illustrates the aging of our legacy Cold War stockpile and our lack of robust design and production capability. We have lost people with unique skills as well as design and production knowledge. Many of our warheads are beyond their design lives and lack desirable safety and surety features we are now capable of incorporating into replacement designs. Our legacy warheads are sophisticated machines,

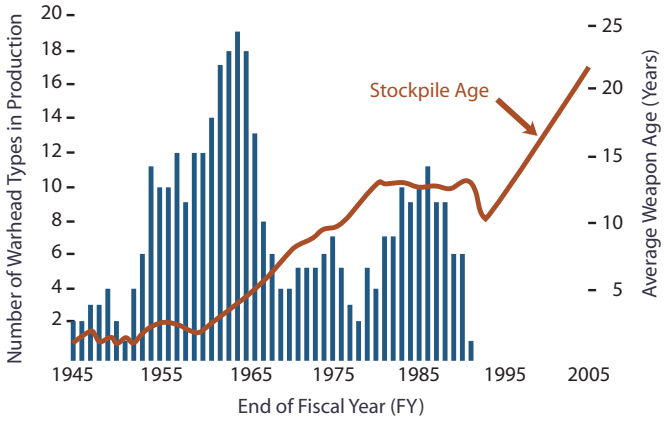


Figure 2. The aging of the nuclear stockpile inherited from the Cold War.

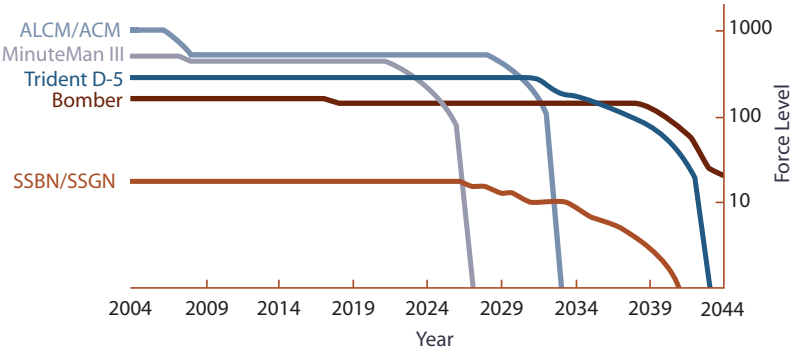


Figure 3. The aging of U.S. strategic nuclear delivery platforms. All are approaching end-of-life.

similar to a 20th century Rolls Royce, with as many as 6,000 intricate parts and complex chemical interactions. Because of their sophistication, some warhead performance margins are extremely narrow. And unlike wine, the reliability of sophisticated machines doesn't improve with age. The best we can do is to extend their lives. Needless to say, reestablishing design and production capabilities remains a very complex and lengthy process.

Figure 3 complements the previous one. Not only is our warhead stockpile aging, all of our strategic delivery systems are aging and approaching end-of-life in an austere and potentially adverse fiscal environment. Contrast this with other key nuclear-capable nations who are modernizing substantially their strategic forces.

Risks and Uncertainties of Strategic Force Reductions

As we contemplate further reductions in our nuclear forces beyond the New START Treaty to lower levels consistent with our national security needs, we will inevitably encounter several risks related to the national security concepts of deterrence, assurance, and dissuasion.

A smaller arsenal may appear to be a more tempting and easier target for preemption, breakout, or a race to parity.

First, some of our allies may seriously question the credibility of our extended nuclear deterrent, so instead of promoting non-proliferation, our reductions may have the perverse, opposite effect. Decades ago, British Prime Minister Denis Healey explained the difference between extended deterrence and assurance with the observation that, "it takes only 5 percent credibility of American retaliation to deter the Russians, but 95 percent credibility to reassure the Europeans." By this, he meant that assuring allies may be more challenging than deterring foes, that there are different measures of adequacy for these two different goals.[9]

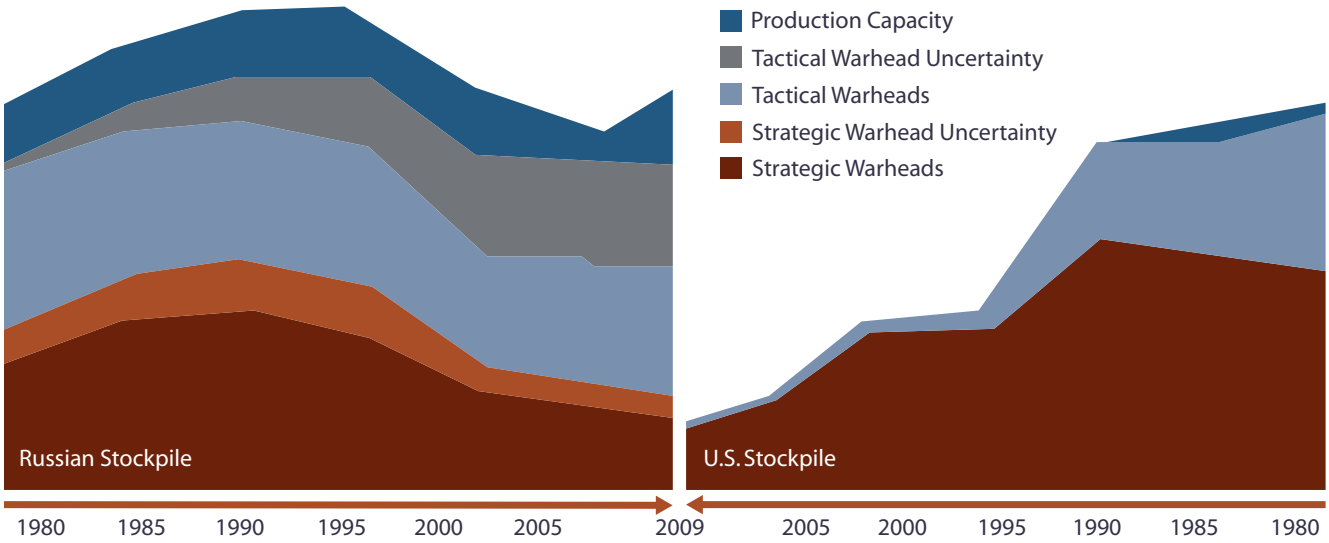


Figure 4. U.S./Russian stockpile comparison. Note the decline of the U.S. nuclear weapons stockpile compared with Russia's.

Second, below certain levels, potential adversaries may be encouraged to challenge us. A smaller arsenal may appear to be a more tempting and easier target for preemption, breakout, or a race to parity.

Third, at some level, it will become more difficult and economically impractical to sustain the present strategic triad. While there is nothing sacrosanct about the triad, numerous analyses and studies have repeatedly reaffirmed the wisdom of preserving the complementary capabilities of land-based intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and strategic bombers.[10]

Each leg of the triad contributes unique attributes that enhance deterrence and reduce risk, such that the whole is greater than the sum of the parts. ICBMs provide a prompt response, the potential to launch under attack[11], and a hardened, geographically-dispersed target base. Additionally, single-warhead ICBMs are considered stabilizing, since they are less attractive as targets than multiple-warhead ICBMs because the ratio of weapons required to destroy them is greater than one. Missile submarines provide survivable, assured response and the mobility to adapt missile over-flight to targets. Strategic bombers provide great flexibility in force posturing, signaling intentions, route planning, and recall-ability.

Together they comprise a robust deterrent capability that complicates a potential adversary's offensive and defensive planning and a synergistic force that provides protection against the failure of a single leg.

Our unilateral disarmament initiatives have done little to promote similar initiatives in our potential adversaries; they have reduced our arms control negotiating leverage.

A fourth risk concerns the asymmetries in U.S. and Russian nuclear stockpiles. Figure 4 is a *relative* comparison of the U.S. and Russian nuclear stockpiles over the past three decades. (Note that both stockpile charts start from the outside and work toward the center.)

This comparison raises several noteworthy points. First, we have dramatically and unilaterally drawn down our tactical nuclear forces in contrast to Russia. To my knowledge, our unilateral disarmament initiatives have done little to promote similar initiatives in our potential adversaries, and at the same time, they have reduced our arms control negotiating leverage. In that sense, the lead part of the "lead and hedge" strategy—the idea that if we lead, others will follow—has proven illusory.

The U. S. has sought to maintain a nuclear weapons capability "second to none." Are we in danger of allowing our nuclear preeminence to become "second to one"?

Second, and similarly, the NPR's promises of a responsive infrastructure remain largely unfulfilled. In contrast to Russia, we have had virtually no warhead production capability for the past two decades and have little likelihood of developing a robust one within the coming decade.

Finally, because of the difficulties and our lack of leverage in expanding treaty negotiations to include tactical nuclear forces and production capability, if we jointly agree to reduce our strategic nuclear forces to even lower levels, the asymmetries in our respective stockpiles will become even more pronounced. As stated earlier, the artificial and inappropriate distinction between strategic and tactical nuclear weapons is cause for concern.

As Ambassador Robert Joseph has written, "Since the start of the atomic age, from Harry Truman to George W. Bush, the United States has sought to maintain, in the words of John F. Kennedy, a nuclear weapons capability 'second to none.'" Are we in danger of allowing our nuclear preeminence to become 'second to one'?[12]

Those who advocate nuclear abolition need to answer some fundamental questions about the logic of zero.

A fifth risk concerns strategic targeting doctrine. Figure 5 is a notional chart intended to illustrate several of the dilemmas of strategic targeting. The curve on the right represents our present and long-standing targeting doctrine of flexible response—a doctrine designed to hold at risk our potential adversaries' military forces, war-supporting industry, command and control capabilities, and military and national civilian leadership, while minimizing to the maximum extent possible collateral damage to population and civilian infrastructure. It is a doctrine designed to provide the president the widest range of options using the minimum level of force intended to achieve our objectives. The curve on the far left illustrates that if we adopted a counter-population targeting strategy, we could achieve significantly more damage with fewer weapons. But at what cost and credibility?

As we reduce the number of available weapons, that flexible response curve moves to the left, which will diminish the robustness and flexibility inherent in a moderately sized arsenal (a few thousand, as compared to a few hundred). Greater stress will be placed on the reliability and survivability of our remaining forces. As stated earlier, at some level, it will become more difficult and economically impractical to sustain the present strategic triad.

And of greatest concern, it will reduce the range of flexible response options designed to provide the president with minimum use of force. Ultimately, below a certain level, to remain credible our targeting doctrine and policies would have to shift away from our traditional flexible response targets to counter-population targets, as depicted by the two curves on the left, which represent the range of counter population options. This transition would be counter to our historical practice, politically less tolerable, and morally repugnant. Although I am not an international lawyer, I would also argue that such a transition is in violation of the Law of Armed Conflict and the Theory of Just War.

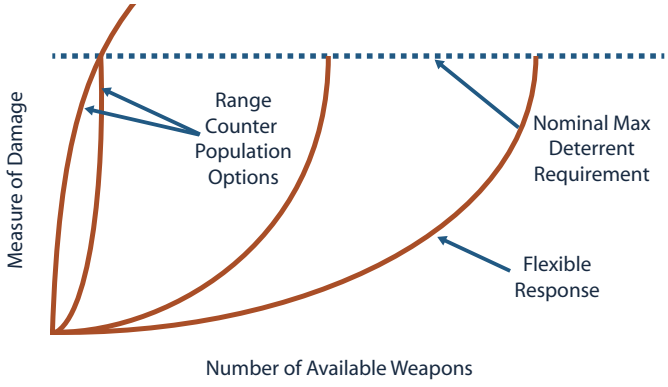


Figure 5. The strategic targeting doctrine dilemma: the relationship between warhead numbers and strategic doctrine.

The Illogic of Zero[13]

In light of the aforementioned transformation of warfare, the widely publicized initiative to eliminate nuclear weapons deserves critical review. Theories and concepts abound on the political, strategic, and military significance of nuclear weapons, but we should be mindful of their limitations. We lack sufficient hard evidence about the consequences of nuclear weapon abolition. In the words of an experienced practitioner:

> *"The resulting limitations in our knowledge ought to instill in all who make predictive statements about these issues a degree of humility not always evident... There is no substitute for looking at the merits of what is said [rather] than the eminence of who said it … the means for creating a world without actual nuclear weapons would have to be of a basic political kind, not a matter of technical arms control. Secure nuclear abolition would be consequence, not cause; and in the journey it has to be cart, not horse... Better unquestionably, pending political transformation, to have nuclear weapons but not war than to have war but not nuclear weapons."*[14]

If biological terrorism remains a major threat despite the abolition of biological weapons, why do proponents believe that the abolition of nuclear weapons will significantly reduce the nuclear threat?

If, as another experienced statesman has stated, "Nations don't distrust each other because they are armed; they are armed because they distrust each other,"[15] shouldn't our focus be on the more fundamental, underlying causes of distrust instead of disarmament? Hence a significant burden of proof rests upon *those who advocate nuclear abolition. They need to answer some fundamental questions about the logic of zero.* Without compelling answers to these questions and achievable actions, I believe their vision will prove counterproductive, promote unrealistic expectations, and serve as justification to keep the strategic enterprise adrift—paralyzed and frozen in time.

First: Is it feasible? If so, what detailed, specific actions must be taken by individual nations and the international community, and in what time frames? How do you achieve those reductions and avoid the risks and uncertainties

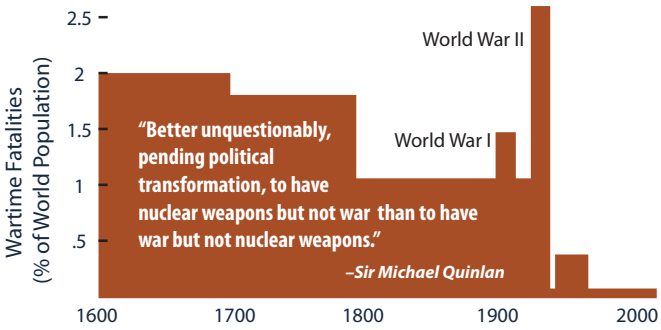


Figure 6. Strategic deterrence –a transformation in warfare. The historical trend of wartime fatalities as a percentage of world population from 1600 to 2000, showing the effect of nuclear deterrence after World War II.

outlined previously? Which other nuclear nations share the abolitionist vision and have actually demonstrated a commitment to work in concert toward that goal?

Second: Is it verifiable? If so, by whom, and with what means? How would compliance be enforced? Considering the examples of North Korea and Iran, is such an intrusive and comprehensive verification regime achievable in our existing geopolitical framework?

Third: If it is both feasible and verifiable, is it inherently stabilizing, and hence sustainable? Since the knowledge to build nuclear weapons cannot be erased, and many nations will have latent nuclear capabilities, what disincentives will preclude cheating or breakout? If biological terrorism remains a major threat despite the abolition of biological weapons, why do proponents believe that the abolition of nuclear weapons will significantly reduce the nuclear threat? What means will exist to prevent a terrorist from acquiring fissile material, which will still be in abundant supply? What means will exist to prevent a rogue nation from aspiring to become a nuclear superpower in a non-nuclear world? As a former professor of mine has written, under abolition, present nuclear powers would actually be latent nuclear powers—hardly "former nuclear powers." If the atom bomb could be invented from scratch during World War II, imagine how quickly the nuclear genie could be conjured back into action now.

> *"In summary, a world without nuclear weapons would be a world in which the United States, Russia, Israel, China and half a dozen or a dozen other countries would have hair-trigger mobilization plans to rebuild nuclear weapons and mobilize or commandeer delivery systems, and would have prepared targets to pre-empt other nations' nuclear facilities, all in a high-alert status, with practice drills and secure emergency communications. Every crisis would be a nuclear crisis; any war could become a nuclear war. The urge to preempt would dominate; whoever gets the first few weapons will coerce or preempt. It would be a nervous world."*[16]

Lastly, if nuclear weapon abolition can be achieved and sustained, is it really desirable? How can we be sure we are not making the world safe for conventional war? And while it may be imaginable to envision a world without nuclear weapons while we are the world's superpower, how safe and secure will we be as a nation when, at some future, inevitable time, we no longer enjoy that distinction? To me these are the most fundamental questions the abolitionists blithely ignore.

Figure 6 reinforces this last question. As this graph of wartime fatalities as a percentage of world population illustrates, conventional warfare took a devastating toll throughout history before the advent of nuclear weapons. However, since the advent of nuclear weapons, the transformation of warfare has been dramatic. The fact that there has not been a war between major powers in almost 70 years is without historical precedent. In contrast, the idea that conventional weapons can credibly deter as effectively as nuclear weapons lacks historical evidence.

As Margaret Thatcher has reportedly stated, "There is a memorial to the failure of conventional deterrence in every town and village in Europe…. A thousand years of European history prove that conventional weapons do not deter."[17] What evidence do those advocating disarmament and nuclear abolition proffer that illustrates how disarmament has made the world more peaceful?

Nuclear forces are in reality very cost-effective relative to conventional forces and historically have consumed less than 5 percent of the DoD budget.

Conventional deterrence can obviously complement strategic deterrence; but, there is no evidence it can supplant it. Regardless of force superiority, conventional weapons are contestable both temporally and geographically; in contrast, nuclear weapons are not contestable. Whereas in the past, nations sought to achieve strategic objectives through war, nuclear weapons have created a strong restraining force among nations to avert war. And that has contributed to a remarkable, revolutionary transformation in warfare.

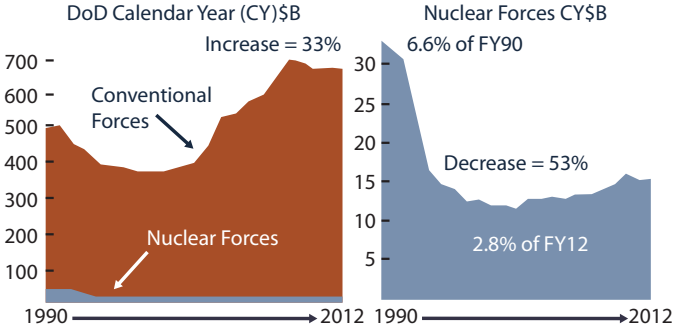


Figure 7. Nuclear force costs (1990–2012). Relative cost trends for nuclear and conventional weapons.

An F-22 Raptor and B-2 Spirit deployed to Andersen Air Force Base, Guam, fly in formation over the Pacific Ocean April 14, 2009. The F-22 Raptor and the B-2 Spirit deployment to Andersen marks the first time F-22 Raptors and B-2 Spirits, the key strategic stealth platforms in the Air Force inventory, were deployed together outside the continental United States. (Photo: U.S. Air Force)

Misperceptions About Nuclear Weapons

There is a common misperception that nuclear forces are disproportionately expensive—a rich "cash cow" that can be milked with further reductions to free up funding for other priorities. As the graph on the left of Figure 7 illustrates, nuclear forces (including dual-capable forces like bombers) are in reality very cost-effective relative to conventional forces and historically have consumed less than 5 percent of the DoD budget. Most of this cost is driven by over-head and infrastructure, such that warhead reductions will not result in meaningful savings. The graph on the right of Figure 7 is an expanded view of the nuclear force costs in the left graph. Considering their role in war prevention, one should think of our nuclear forces much like we think personally about health and life insurance. Their cost, as a small percentage of the DoD budget, is a very reasonable premium for the nation's "ultimate insurance policy."

There is also a naïve and mistaken belief that the "nuclear danger" is directly proportional to the number of nuclear weapons, and accordingly, lower is axiomatically better. However, disarmament is not inherently stabilizing. One can envision many scenarios where small numbers breed instability.

In addition, there is a common fallacy about deterrence that holds that nuclear weapons deter only nuclear weapons. To accept that, one has to accept that nuclear weapons have played no role in the remarkable peace among the nuclear powers during the past six decades despite periods of significant tension and East-West confrontation. While it is impossible to prove a negative, how else does one reasonably justify the precipitous change depicted in Figure 6?[18]

And it would be equally fallacious to assume, that without some fundamental change in the political configuration of the world, nuclear weapons have no relevance for the future. Deterrence is about preventing all major wars, not just nuclear ones, since major war is the most likely road to nuclear war. As such, a policy of "weapons of last resort" makes sense. A policy of "no first use" of nuclear weapons, if believable, weakens deterrence of major conventional war and rests upon a false strategic premise.

Finally, the oft-cited characterization that our strategic forces are on "hair trigger" alert is a scare tactic routinely used to justify proposals to lessen the potential responsiveness of our strategic forces. In fact, multiple stringent procedural and technical safeguards are in place to guard against accidental or unauthorized launch and to ensure the highest levels of nuclear weapon safety, security, reliability, and command and control. Robust reconstitution capabilities are in place to survive sufficient forces, command and control systems, and national leadership to enable us to "ride out" an attack and not rely upon "launch on warning." In peacetime, our strategic forces are not even targeted against potential adversaries. The U.S. trigger is built so we can always wait.

Guiding Principles for Strategic Force Reduction

There are a number of fundamental principles that should guide further strategic force reductions.

Because we have neither new delivery platforms nor new warheads in development, we must not be hasty in taking irreversible steps to reduce our capabilities and flexibility.

First, we should continue to focus on arms control measures that directly and demonstrably enhance stability and reduce the risks of war. Stability—the lack of an incentive on either side to initiate major aggression or conflict, the assurance against being caught by surprise, the safety in waiting—rather than numerical parity is the most important criterion in assessing force structure and posture options. As Albert Wohlstetter wrote many years ago, "Relaxation of tensions, which everyone thinks is good, is not easily distinguished from relaxing one's guard, which everyone thinks is bad."[19] Deterrence ultimately depends not on our capability to strike first, but on the assurance, we always have the capability to strike second.

Stability rather than numerical parity is the most important criterion.

Second, we must preserve sufficient deterrent capabilities to respond to future challenges, to provide a cushion against imperfect intelligence and technological surprises, and to provide a reconstitution capability as a hedge against unwelcome geopolitical developments. As we reduce our nuclear forces to lower levels, numbers alone become less important. Attributes such as survivability, reliability, transparency, accountability, reconstitution, force asymmetries, production infrastructures, and verifiability become more and more important. It is ultimately the character and posture of our forces, as well as those of our allies and adversaries, more than just numbers, that makes the strategic environment stable or unstable. Preservation of our capability to adapt our deterrent forces to a rapidly changing and unpredictable strategic future is critical. Because we have neither new delivery platforms nor new warheads in development, we must not be hasty in taking irreversible steps to reduce our capabilities and flexibility.

Third, strategy must be the starting point—it should drive numbers rather than the reverse. A number of people have declared with unwarranted certitude that we can successfully reduce our operationally deployed forces to some lower number (for example, 500 or 1,000) without ever formulating or articulating what changes in national strategy, objectives, capabilities, force structure, and force posture would be required. Instead of threat-based or capability-based deterrence underpinned by rigorous analyses, war-gaming and risk assessment, they seem to be advocating a form of faith-based deterrence.

Strategy must be the starting point for rigorous analysis with a logic path akin to the following:

- Whom do we want to deter, and under what circumstances might we need to simultaneously deter more than one potential adversary?
- What do those potential adversaries hold that they value most?
- What kinds of capabilities do we need to hold what they value at risk under the most stressful of scenarios?
- What kinds of capabilities do we need to meet our extended deterrence commitments to our allies and friends?
- How do we hedge those capabilities against technological surprise and imperfect intelligence?

An Ohio class ballistic missile submarine. (Photo: U.S. Navy)

- What form of strategic reserve, supporting infrastructure, and reconstitution capabilities are required to maintain those capabilities?
- How do we posture those capabilities to promote stability—for example, to discourage any potential adversary from preemption, to avoid a "use them or lose them" situation, and to ensure we always have the capability to strike second?
- And finally, what numbers of various capabilities, based upon rigorous analyses, are required to hold at risk a sufficient amount of what our potential adversaries value without accepting undue risk ourselves, while providing the president the widest range of options using the minimum level of force intended to achieve our objectives?

Fourth, we need to view reduction as a means to an end—national security—and not as an end itself. Given the clear risks and elusive benefits inherent in additional deep reductions, those who advocate them bear the burden of proof to demonstrate exactly how and why such cuts would serve to enhance national security.

Summary

An early strategist's metaphor that nuclear planners are like homebuilders remains true today. A wise architect does not design only for benign environments, but for the worst weather conditions one can reasonably anticipate. We have to consistently maintain a 'building code' for our strategic forces to ensure they can weather the most stressing scenarios we can reasonably postulate.[20]

None of the foregoing discussion is intended to discourage reductions in our nuclear arsenal *that promote greater stability*, but it is essential to recognize that the journey is far more important than the destination, and that *the overriding goal is not reductions for disarmament's sake, but increased international stability and, most important, the avoidance of war*. We need to carefully manage the risks and uncertainties we face in this new strategic era. Our strategic enterprise, and particularly our force structure and doctrine, needs to be robust, flexible and credible. We must always maintain the ability to both reassure our allies and convince potential agressors to choose peace rather than war, restraint rather than escalation, and conflict termination rather than continuation.

~ Admiral Richard W. Mies, United States Navy (retired)

Footnotes

1. Frederick S. Dunn, et al., The Absolute Weapon (New York: Harcourt, Brace and Co, 1946), pp 21-107.

2. Ibid, p 76.

3. Michael Quinlan, *Thinking About Nuclear Weapons,* Whitehall Paper 41 (London: The Royal United Services Institute for Defence Studies, 1997), p 8.

4. Thomas C. Schelling, Arms and Influence (New Haven: Yale University Press, 1967), p 134.

5. See Schelling, ibid, for a fuller discussion.

6. Sun Tzu, The Art of War, translation by Samuel B. Griffith (Oxford University Press, 1963), p 77.

7. Numerous classified reports, including two Defense Science Board Reports separately chaired by Adm. Henry Chiles and Gen. Larry Welch, the Schlesinger Task Force Report, the End-to-End Review chaired by Lt. Gen. Brent Scowcroft, and the Nuclear Comprehensive Report that I chaired, serve as examples.

8. Albeit misleading, because strategic war-head numbers are tied to counting rules associated with delivery platforms due to practical limitations in our monitoring and verification capabilities.

9. Keith Payne, "Future of Deterrence: The Art of Defining How Much Is Enough," *Comparative Strategy: an International Journal,* Vol. 29, Issue 3, 2010, p 219. Some refer to this as the Prime Minister Healy paradox.

10. In every STRATCOM force structure analysis I've been involved with over the years, there were two general truths: 1) For the same force levels, a triad performs better than a dyad, and a dyad performs better than a monad. Diversity affords a hedge against single-point failures and significantly complicates a potential adversary's offensive and defensive planning considerations. 2) There is a tyranny in low platform numbers that greatly restricts the flexibility, survivability, and resiliency of the force. Fewer weapons in more delivery platforms fare far better than too many weapons in too few platforms.

11. While it is not U.S. policy to depend upon launch under attack, the ambiguity associated with the potential to launch under attack complicates any adversary's preemption calculations.

12. Robert G. Joseph, "Second to One," *National Review,* October 17, 2011.

13. For a complementary rationale, see Bruno Tertrais, "The Illogic of Zero," *The Washington Quarterly,* April 2010.

14. Michael Quinlan, *Thinking About Nuclear Weapons,* Whitehall Paper 41 (London: Royal United Services Institute, 1997), pp 5, 41.

15. Salvador de Madariaga, Morning without Noon (Farnborough, Hampshire, U.K.: Saxon House, 1974), p 48.

16. Thomas C. Schelling, "A World Without Nuclear Weapons?" *Daedalus,* September 2009, p 124-129.

17. Although these alleged statements are widely quoted, no definitive source for them has ever been cited.

18. For a more complete and compelling rationale, see James Schlesinger, "The Impact of Nuclear Weapons on History," *The Washington Quarterly,* Autumn 1993.

19. Albert Wohlstetter, "The Delicate Balance of Terror," originally published in *The New Republic,* September 1, 1958 (revised November 6, 1958), RAND Corporation publication P-1472.

20. Thomas C. Schelling, in discussion with the author.

Admiral Mies, when serving as STRATCOM's Commander. (Photo: DoD)